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ABSTRACT

This paper describes Project THREAD (Technology: Helping Restructure Educational Access and Delivery), an initiative funded by the U.S. Office of Education through its Preparing Tomorrow's Teachers to Use Technology grant program. The project's overarching goal is to build the capacity of individuals and institutional structures to support the infusion of technology throughout the UNLV's (University of Nevada, Las Vegas's) teacher preparation program. This will be done through: (1) a series of inservice workshops for university faculty, administrators, field supervisors and mentor teachers; (2) one-on-one follow-up support provided by project staff and advanced undergraduate students; (3) a mini-grant program in collaboration with the UNLV's Teaching and Learning Center to support the development of technology-based modules for teacher education courses; and (4) expanded opportunities for students to apply technology in their courses and field experiences. Overall, Project THREAD seeks to implement a systematic planning model and move from "pockets" of technology integration toward widespread infusion throughout UNLV's teacher preparation program. (Contains 10 references.) (Author/MES)

PROJECT THREAD: TECHNOLOGY HELPING RESTRUCTURE EDUCATIONAL ACCESS AND DELIVERY

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Abstract: This paper describes Project THREAD, an initiative funded by the U.S. Office of Education through its Preparing Tomorrow's Teachers to Use Technology grant program. The project's overarching goal is to build the capacity of individuals and institutional structures to support the infusion of technology throughout UNLV's teacher preparation program. This will be done through: (a) a series of inservice workshops for university faculty, administrators, field supervisors and mentor teachers; (b) one-on-one follow-up support provided by project staff and advanced undergraduate students; (c) a "mini-grant" program in collaboration with the UNLV's Teaching and Learning Center to support the development of technology-based modules for teacher education courses; and (d) expanded opportunities for students to apply technology in their courses and field experiences. Overall, Project THREAD seeks to implement a systematic planning model and move from "pockets" of technology integration toward widespread infusion throughout UNLV's teacher preparation program.

Introduction

Project THREAD (Technology: Helping Restructure Educational Access and Delivery) is based on the belief that for technology to truly impact education, it should be woven throughout the fabric of students' learning experiences--an integral part of the design. As thread connects the component parts of a garment or tapestry, so too can technology help connect learning experiences across assignments, classes, or subject areas. For this goal to be realized, however, teachers must be prepared to apply a range of learning technologies in a variety of ways. Clearly, the level of preparation required to do this goes well beyond what can be accomplished in an introductory educational technology course. Project THREAD, therefore, proposes to weave together a mixture of new and existing learning opportunities to prepare preservice teachers for tomorrow's technology-rich classrooms.

The consortium for this project includes the University of Nevada, Las Vegas (UNLV), and the Clark County School District (CCSD). In addition, it involves new collaboration among various entities at UNLV, the project's lead organization, and a continuing collaboration with a K-8 private school, St. Viator's. The consortium's overarching goal is to build the capacity of individuals and institutional structures to support the infusion of technology throughout the professional preparation of preservice teachers.

Need for the Project

Recent research studies indicate that teacher preparation programs are not adequately preparing graduates to teach with technology (Moursund & Bielefeldt, 1999; U. S. Congress, 1995; Willis & Mehlinger, 1996). Many impediments to technology integration in colleges of education have been cited including the lack of technology resources, time, professional development, and support. While our consortium members have attempted to address these obstacles, efforts thus far have led to "pockets" of progress rather than firmly entrenched systemic solutions. Project THREAD's goal, therefore, is to move from isolated "pockets" of technology integration toward widespread infusion in all aspects of our teacher preparation program. This, of course, will take time to put in place. As Fullan (1991) reminds us, "It takes a fortunate combination of the right factors--a critical mass" (p. 92) to institutionalize desired changes. While all of the initiatives proposed in this project are designed to be carried out within the one-year time frame of the grant, the interventions described mark beginning efforts in what we propose to "ramp up" and expand over the next several years.

Technology Use in the COE

A recent study by Falba, Strudler, & Boone (1999) documents the attitudes towards technology by UNLV COE faculty and their use of technology in teaching. Survey data suggest that although virtually all faculty believe that technology integration in teacher education is important, their use of technology in teaching is limited (see Figure 1). This finding refutes the belief some have held in the past that if faculty learn to use technology for their own professional productivity, they will eventually find ways to integrate technology into their teaching.

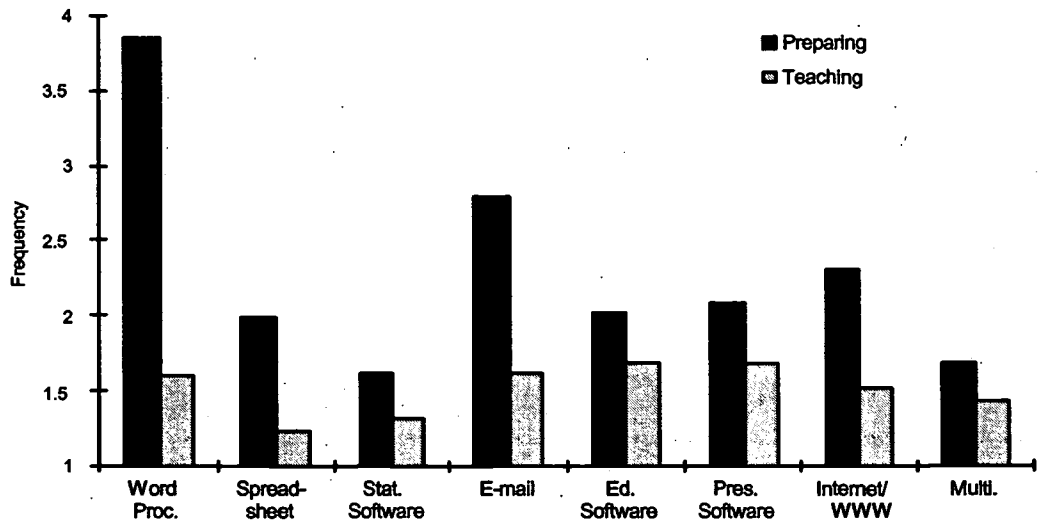

Figure 1. Means for Use of Technologies in Preparing for and in Teaching Class
Note: (1) Not at all, (2) Once during Semester, (3) Monthly, (4) Weekly

Despite the gap between COE faculty's use of technology for their own productivity and their integration of technology into their teaching, 66% of COE faculty rated technology in teacher education as very important and 27% rated it as somewhat important. Less than 7% of the faculty indicated that integrating technology was not too important and no one selected not at all important. Despite the availability of computer resources and the belief expressed by faculty that technology in teacher education is important, survey data reveal that more than half the faculty do not integrate technology in their teaching.

It is the goal of the project to address the "disconnect" between faculty's beliefs about technology and their actual use. Research confirms that this gap can be reduced through comprehensive planning, professional development, and follow-up support (Falba, Strudler, & Boone, 1999; Strudler, McKinney, & Jones, 1995). While efforts have been made to support faculty with workshops and some individual assistance, past attempts to

implement a systematic planning model for technology infusion were met with limited success (Falba, Strudler, & Boone, 1999). We concluded that to make progress in formulating a systematic plan, greater emphasis needs to be placed on helping faculty develop their vision for technology use in their particular subject areas. It was further concluded that the hesitancy of faculty to commit to technology integration could be overcome by continuing to expose them to compelling reasons, specific suggestions, and very importantly, ongoing access and support. To meet this identified need, this project includes increasing faculty's access to technology for teaching, an extensive professional development program, follow-up support, and a planning model designed to support the infusion of technology throughout the entire teacher education program.

Technology and First Year Teachers

A study of first year teachers in the CCSD confirms gaps in their preparation to use technology. Respondents to a recent survey reported positive attitudes concerning their required technology course as well as their views about integrating technology into P-12 education. They reported, however, that their program did not provide opportunities to use computers with students in their teaching. Only one fourth of beginning teachers were required to teach a minimum of one lesson using computers in their field experiences (Strudler, McKinney, Jones, & Quinn, 1999). This finding is consistent with the survey reported by Willis & Mehlinger (1996) which concluded that technology was barely considered in student teaching placements and only a minority of student teachers were required to teach with computers in student teaching. This project intends to address this need by various initiatives to integrate technology into students' field experiences. This will involve working with UNLV faculty, CCSD and St. Viator's mentor teachers, and field placement staff from all of the institutions.

Project Goals and Initiatives

A recent study of colleges of education deemed exemplary in their integration of technology (Strudler & Wetzel, in press) documented a range of student learning opportunities that lead to desired technology-related outcomes for preservice teachers. Typically, preparing teachers to use technology is accomplished in three interrelated components: educational technology courses, integration of technology into subject area methods courses and other university courses, and integration of technology into students' field experiences. Below is a description of how we propose to address these components, organized by the goals of the project.

Goal 1. To enhance the ability of university faculty and field supervisors to effectively model technology use and support preservice teachers in their use of technology.

Efforts to integrate technology into teacher education courses will consist of: (a) a large-scale program of professional development for COE faculty and university supervisors; (b) providing follow-up support for faculty seeking to integrate technology; and (c) implementing a mini-grant program that further supports the faculty's efforts to restructure a component of their courses with a technology-based module. A description of each of those components follows.

Professional Development.

Consistent with research within our program as well as the larger body of literature, professional development is critical to achieve widespread technology integration. While data indicate that a large majority of faculty are competent in a variety of computer applications, steps need to be taken to help faculty find ways to integrate technology to enhance their classes. To accomplish this, a collaborative staff development program will be implemented by the Project THREAD staff and UNLV's newly created Teaching Learning Center. During the fall semester, a needs assessment was conducted to help identify topics that the faculty believe would best meet their needs. The following workshops, listed in order of preference, were identified by the faculty: web-based teaching using WebCT, creating web pages, educational software for particular curriculum areas, overview of COE technology resources, teaching with a mobile lab of notebook computers, and making presentations using Power Point.

University supervisors and adjunct instructors will be invited to participate in the sessions planned. A

minimum of five different sessions are planned; each offered at least two times. In addition, we anticipate offering additional workshops that address the needs of a small group of faculty.

Follow-up Support

Research indicates that follow-up support is critical to implement any major changes in one's teaching repertoire, whether at the K-12 or university level. COE faculty have confirmed that this is a major need that must be addressed for us to effectively infuse technology into our programs (Falba, Strudler, & Boone, 1999). While some resources have been allocated in the past to address this need, due to efforts to increase the quantity of teacher education graduates, adequate funding for technology support has not been forthcoming. Therefore, Project THREAD proposes to provide ample support in this one-year period to meet this need and enhance the capacity of the faculty. Both the Project Director and the Associate Director have been allocated one course released time per semester by UNLV's College of Education.

Other personnel for the project include a project coordinator, one half-time graduate assistant, and three undergraduate students assigned to work with UNLV faculty and at the Paradise Professional Development School. Overall, we view this concentrated effort to provide support as a much needed ingredient for the success of the project.

Mini-grant Program

An additional component of our faculty development efforts include a mini-grant program which provide an incentive for faculty to develop technology-based modules to enhance their current courses. Faculty will submit a proposal and specifically address which of the Foundation Standards established by the International Society for Technology in Education (ISTE, 1995) for beginning teachers that they intend to address. If funded, faculty will work during a two-week period when school is not in session during the summer. The Project THREAD Advisory Board, composed of UNLV personnel and representatives from CCSD and St. Viator's, will review the proposals and rank order them. Ten proposals will be funded for up to $1500 each—a $1000 stipend and up to $500 for equipment or software. Criteria for rating the proposal will be based on the quantity and quality of learning for the faculty involved in the project, and the degree to which the proposal meets specified ISTE standards and address gaps in the current COE programs. Gaps in the standards will be ascertained via the planning process describe below in Goal 2. To foster integration in coursework and throughout programs, faculty will also be encouraged to submit collaborative mini-grant proposals.

The newly created university Teaching and Learning Center (TLC) has agreed to partner with the COE to support this mini-grant program. The director of the TLC has committed that his staff will collaborate with the Project THREAD staff to support faculty with their mini-grants and other training needs.

Goal 2. To develop a COE/CCSD planning model for systematic integration of technology throughout the teacher education program.

To achieve this goal the project staff plans to get "buy in" from the faculty on a planning process and agree upon a set of standard for outcomes pertaining to preservice teachers' use of technology. We intend to begin with the ISTE standards, but may modify them based on faculty input. The proposed planning model would involve a detailed process (Strudler, Handler, & Falba, 1998) of assessing current levels of technology integration organized by the ISTE standards. Individual faculty's current use of technology would be compiled across the entire program and gaps in current uses (i.e., unmet standards) would be identified. Following, project staff would work with interested faculty to identify new technology applications that might fit into their current courses. Faculty would also be encouraged to work with others in their subject areas as well as with faculty across disciplines. The long term goal is to get faculty to commit to making specific applications of technology an integral part of all sections of particular classes. To accomplish this we plan to motivate "volunteers" through workshops, follow-up support, and the mini-grants and work towards establishing a critical mass of adopters over time. Our long-term goals is to achieve systemic change so that technology integration becomes part of the fabric of our programs.

Goal 3. To develop and test a coordinated field placement system for preservice teachers in partnership with CCSD.

This goal addresses the critical need of providing students opportunities to apply technology in their

practica and student teaching. As the literature attests, this component of technology integration in teacher preparation is clearly the most lacking, and arguably, the most important. We recognize that to fully integrate technology into students' field experiences will take several years. It is our goal in this one-year period to get started with several approaches, that if successful, can be expanded in the coming years.

Based on effective practices in exemplary colleges of education (Strudler & Wetzel, in press), we are beginning to offer students the option to request student teaching placements with a technology-using teacher. UNLV Field Experience office has committed to collaborating with CCSD to make this option available, on a limited scale at first. The field experience office has adjusted its database to match interested students with CCSD mentor teachers who would like to integrate technology into the student teaching experience.

In addition, we are creating a new undergraduate course for students who have completed our required technology course. Based on the model from the University of Virginia (Strudler & Wetzel, in press), students will obtain skills in applying the WWW and multimedia authoring to K-12 classrooms during the first half of the semester. Then students will be paired with exemplary technology-using teachers from CCSD and St. Viator's School for a 7-week field experience. Finally, students will complete the semester back at UNLV to reflect on their experiences. When in the field, students will keep a reflective log of their experiences and will communicate with other students and the course instructor via a WebCT bulletin board set up for the class.

While we recognize that creating an additional educational technology class does not provide a long-term solution for technology integration, we feel that undergraduates who are ready for substantial field experiences should have that opportunity today. We agree with the recent ISTE/Milken report (Moursund & Bielefeldt, 1999) that supports the value of technology integration over educational technology classes, but while we are working to make progress in this area, we intend to work with motivated undergraduates to begin implementing a technology-based field component today.

An additional way to advance the integration of technology into field experiences is to work with partner schools in established cohort programs. We plan to do this with the Urban Teaching Partnership (UTP) program and the Paradise Professional Development School , both of which are joint UNLV/CCSD projects that have expressed interest in furthering the infusion of technology in their respective programs. It is hoped that successful integration of technology in these two alternative program will serve as a model for other collaborative, field-based ventures.

Goal 4. To expand access to technology resources in College of Education courses.

Access to technology resources is another key factor that supports faculty integration efforts. While we currently have three multimedia carts for check out, faculty have reported that these resources are not adequate to meet the expanding demand for using this equipment. Furthermore, we would like to provide opportunities for faculty and students to go beyond the presentation mode to actually integrating class sets of computers. To do this, we are planning to acquire a portable lab consisting of 10 laptop computers that are housed in a convenient cart (that holds up to 16 computers). The cart includes a mechanism to recharge the laptops when they are placed in the shelves that are provided.

Another approach to increasing access to technology resources will be through the development of a web-based version of our introductory course in educational technology. The Department of Distance Education has supported this goal and committed to fund the development of the course in Fall 99. As an urban university supporting an ever increasing population of working adults, the option will be a welcome addition to our offerings.

A final attempt to increase access to technology resources involves our collaboration with UNLV's Curriculum Materials Lab (CML). Its director has committed to purchase CD-ROM materials for review in the CML and for check out by students. This access will allow students to use educational software from UNLV in their field experiences. Currently, no system is in place at UNLV that provides this opportunity.

Resources

The COE has two instructional computer labs with a total of 50 computers--one Mac lab, one PC lab, each with projection units. In addition there is a open computer lab for students to use with 20 Macs, three multimedia carts, two notebook computers, and a portable projector available for faculty to use on a sign out basis. Additionally, the Bennett Professional Development Building is expected to be completed by January, 2000. This building will contain a state-of-the-art laboratory for use by students at the Paradise Professional Development School as well as UNLV students and faculty.

Project Evaluation

Evaluation has been a careful consideration throughout the development of this proposal. The evaluation will have both formative and summative components. The formative element will focus upon the processes used in implementing the project and will generate feedback to the program that will help to ensure that any barriers to effectiveness are identified so that they can be removed. The summative component is the most critical element in the evaluation and will focus upon the results of the grant activities. In both components of the study, quantitative and qualitative measures will be employed.

Preliminary Results

By the deadline for submission of this paper, grant activities were just getting underway. Requests for field placements with technology-using mentor teachers were compiled. Of the 332 students who received this option, 97 (29.2%) requested placements with technology-using teachers. Additional results of project activities will be reported at the SITE 2000 Conference.

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